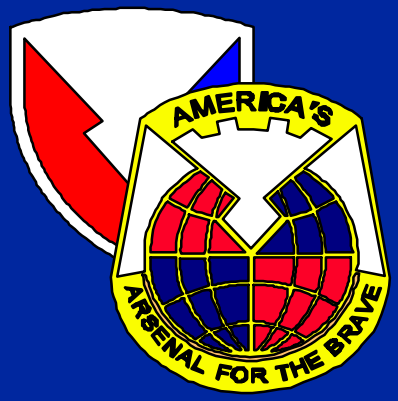
Current Non Lethal Materiel Programs



Joint Vision 2010

"To protect our vital national interests we will require strong armed forces, which are organized, trained, and equipped to fight and win against any adversary at any level of conflict. Concurrently, we must also be able to employ these forces in operations other than war to assist in the pursuit of other important interests".

Presented by

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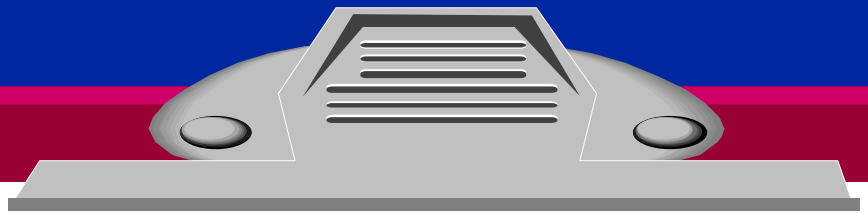
Army Materiel Command

Non Lethal Materiel Program

NL Operational Concept



Guiding Principles

- *Enhance Operations*
- *Leverage "High-End" Technologies*
- *"Rheostatic" Capability*
- *Policy Acceptability*
- *Reversible Personnel Effects*
- *Augment Deadly Force*
- *Expeditionary Character*
- *Focus on Tactical Applications*
- *Applicability Across the Range of Military Options*

BLWE ongoing at DBBL to Validate Operational Concept Vignettes

Mission Need Statements

The US Marine Corps and Army have Approved Mission Need Statements

Areas of Commonality include:

- **Enhancing Operational Capability**
  - **Conduct Operations across the Range of Military Operations**
    - **Missions include:** ***Cordon and Search, Humanitarian Assistance, Peace Enforcement, Peace Keeping***
      - **Systems that provide flexible means of response**

Goals

FY95 FY00 FY 05 FY1

Short Term

Put a “family” of multi-purpose, easily trained, and inexpensive non-lethal tools which can be employed from existing weapons platforms into the hands of the soldiers in order to satisfy immediate user requirements.

Long Term

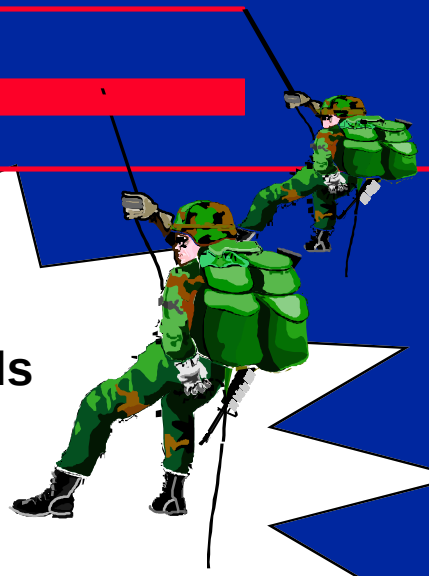
Improve on solutions to immediate requirements. Anticipate and provide solutions to future user requirements.

Strategy

	FY95	FY00	FY 05	FY 10
Develop & Advance Technologies				
Insert into Existing Weapon Platforms				
Develop NL Weapon Platforms				
Concept Evaluation Program				
ACTDs, BLWEs, JLOEs, AWEs				
Transition to PM/PEO				

Provide Capabilities to:

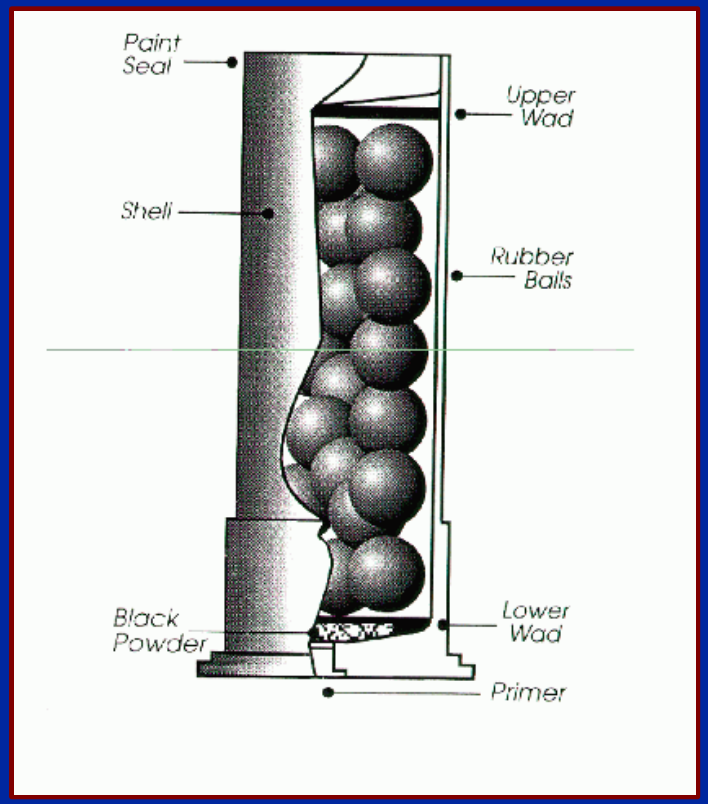
- Stop a Vehicle
- Incapacitate/Stop Individuals
- Distract Individuals
- Seize Individuals
- Control Crowds
- Block an Area
- Disarm/Neutralize Equipment



FY 98/99 Service Program List

1. *NL Crowd Dispersal (M203) (Army/ARDEC)*
2. *Acoustic Target Effects (Army/ARDEC)*
3. *MCCM (NL Claymore) (Army/PM-MCD)*
4. *Stoppers*
   a. *Ground (Army/ARL)*
   b. *Maritime (Navy/NSWCDD Dahlgren)*
5. *Speed Bump (Net) (Army/PM-MCD)*
6. *Area Denial Technology (Air Force/AFRL Phillips Research Site)*
7. *66mm Vehicle Launched Payload (Army/PM Smoke)*
8. *UAV NL Payloads (Navy/NSWCDD Dahlgren)*
9. *Bounding NL Payloads (Army/ARDEC)*
10. *Canister Launched Area Denial System (CLADS) (Army/PM-MCD)*
11. *Foam Applications (Army/ERDEC)*
12. *Acoustic Generators (Army/ARDEC)*
13. *Vortex Ring Gun (Army/ARL)*
14. *Underbarrel Tactical Payload Delivery System (Army/ARDEC)*

NL Crowd Dispersal (M203)



***Category*:** Kinetics, Anti-Personnel

***Concept of Operation*:** Crowd Control Incapacitate Personnel

Technologies: Blunt Impact Trauma

Program Objectives: To Type Classify a 40mm Non-Lethal Crowd Dispersal round for the M203 Grenade Launcher

Acoustics Programs

Category: Directed Energy

***Concept of Operation*:** Provide a rheostatic crowd control and/or area denial capability, to be determined based on results of concept exploration studies. Options include a crew-served or vehicle mounted weapon, or a munition delivered by UAV/UGV, artillery, or area denial munition.

Technologies: Pressure wave generation, impedance matching and target coupling, target effects..

Program Objectives: Provide the warfighter with a rheostatic weapon.

Modular Crowd Control Munition (NL Claymore)

Category: Kinetics, Pre-emplaced munitions.

***Concept of Operation*:** Crowd control and vehicle self protection
- NL version of M18A1 Claymore

Technologies: Propelling charge with rubber balls and flash-bang.

Program Objectives: Transition design of M18A1 APERS into a device to produce sting effect at 5-15 meters with flash and bang.

Stoppers (Ground)

Category: Directed Energy

Concept of Operation: Stop a vehicle engine by disabling electronic components

Technologies: Swept frequency microwave transmitter; direct injection device (high voltage pulse)

Program Objectives: Develop a lightweight, compact device capable of stopping both military and commercial engines.

Stoppers (Maritime)

Category: Maritime Vessel Stopper

Concept of Operation: Provide a capability to non-lethally deter, disrupt or stop suspect surface vessels of interest:

- Littoral scenarios (force protection)
- Coastal/River Tanker (interdiction)

Technologies: Various anti-material/ anti-personnel agent technologies including entanglers, foams, foreign object damage, taser, etc.

Program Objectives: To develop a device that will disable small inboard diesel powered surface vessels.

Speed Bump (Net)

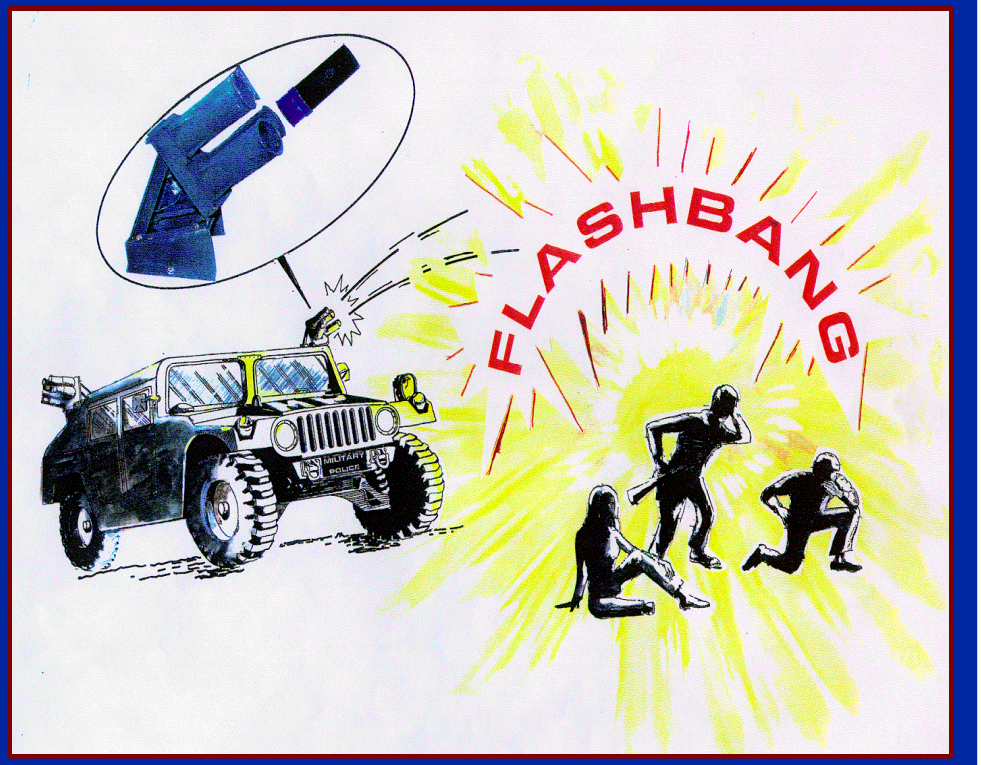
Category: Vehicle Stopper

***Concept of Operation*:** Pre-emplaced at key vehicle entry points without impeding flow of traffic. Command-activated to capture suspect vehicle without serious injury to occupants.

Technologies: Pneumatic telescoping poles, vinyl webbed arresting net, disc braking system.

Program Objectives: Use a pre-emplaced vehicle immobilizing "Speedbump" system to stop a 7,500 lb vehicle traveling at 40 - 60 mph within 200 ft, without serious injury to the vehicle occupants.

66mm Vehicle Launched Payload



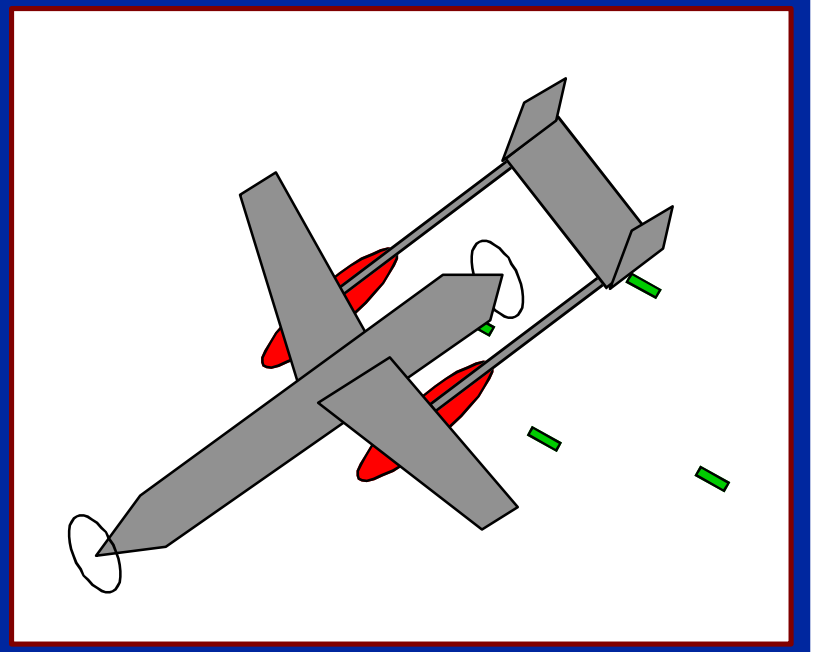
Category: Kinetics

***Concept of Operation*:** System employed at standoff from vehicle to deter rioting crowds

Technologies: Kinetics, Pyrotechnics

Program Objectives: Develop NL flashbang payload for 66mm Vehicle Launched system for crowd control purposes.

UAV NL Payloads



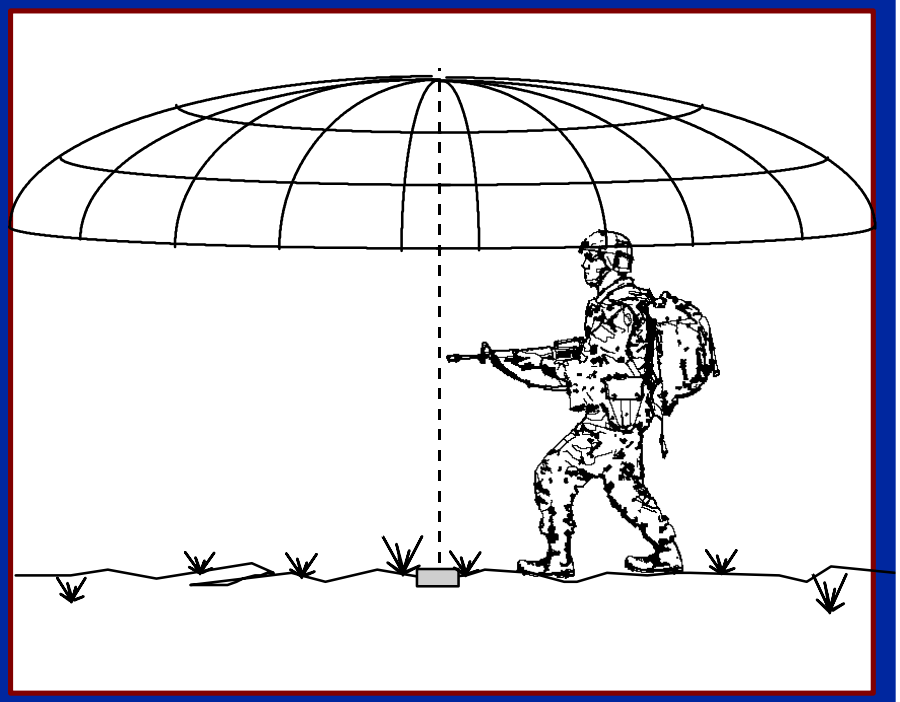
Category: NL Delivery Methods

Concept of Operation: Use UAVs to deliver non-lethal payloads in support of MOOTW

Technologies: UAV Systems, Dispenser Mechanisms, Non-Lethal Payloads, Accurate Delivery.

Program Objectives: To develop a non-lethal payload dispensing capability for UAVs.

Bounding NL Munition



M16A2 Hand Emplaced “Bouncing Betty”

Category: Entanglements, Site Security/ Perimeter Defense.

***Concept of Operation*:** Item functions similar to tactical bounding APERS mine (M16A2) but with delay/deter payloads (add delay to APL alternatives).

Technologies: Rapid, reliable activation (IR sensor, trip wire) for high reliability capture. Potential immobilization enhancers - sting balls, malodorants, markers and nets.

Program Objectives: To demonstrate the deployment of a delay/deter payload from a tactical bounding munition.

Canister Launched Area Denial System (CLADS)

Category: Entanglement (AP/AM)

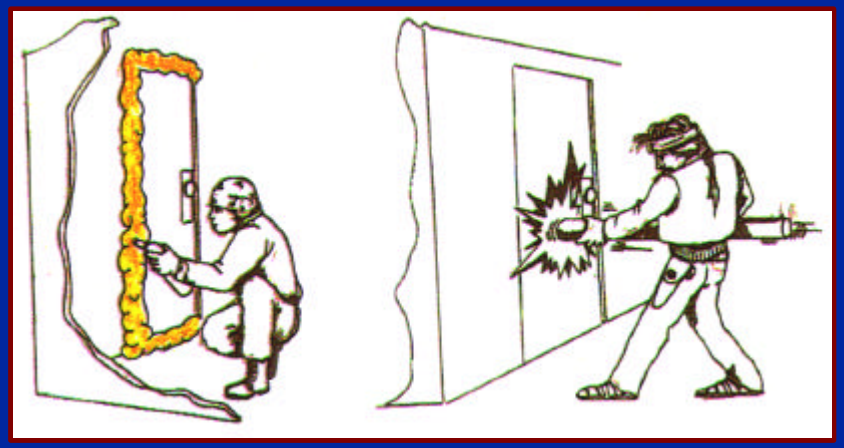
Concept of Operation: Rapidly deploy Non Lethal (NL) payloads from the Volcano Mine Dispenser system mounted on a HMMWV, utilizing a 20 canister launcher rack.

Technologies:

- Payload selection (various)
- Modular Payload

Program Objectives: Demonstrate and validate the dispensing of NL payloads (concertina, bounding munition, malodorous, etc.) from a Volcano system utilizing a 20 canister rack, mounted on a HMMWV.

Foam Applications



Category: Rigid Foam and Epoxies

Concept of Operation*:* Rigid foams for area denial and quick seal of doors and window. Will also be used as an anti-materiel agent for small arms and other equipment.

Technologies*:* Accelerate polyurethane/epoxy cure times, dispenser/ packaging.

Program Objectives: To formulate/design and field a fast curing rigid foam and dispensing system

Vortex Ring Gun

Category: Vortex Ring Gun (VRG)

Concept of Operation: Apply vortex ring gas impulses with combined target effects (flash, concussion and non lethal agents and/or markers) to provide the user with area denial and crowd control capability beyond current NL kinetic munition ranges.

Technologies: Vortex ring formation and propagation, entrainment of nonlethal and marker agents in vortices, blank MK19-3

40 mm round development.

Program Objectives: Provide the user with a retrofit kit for the MK19-3 automatic 40 mm grenade launcher to enable quick changes between lethal and non lethal operations employing blank cartridges, a

Under-barrel Tactical Payload System

Category: Kinetics - Point and Area Target

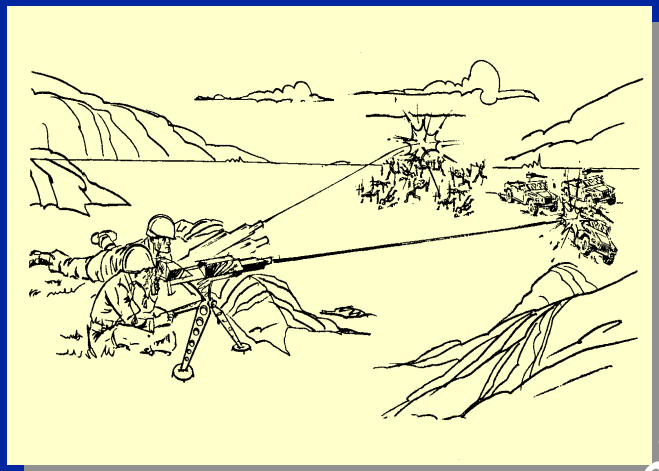
***Concept of Operation*:** Neutralize selected targets and areas at a distance of 30-100 meters with a modular, secondary NL multi-shot armament system. Near instantaneous change over to M16A2/M4's lethal fire.

Technologies:

- Pneumatic (compressed-air propulsion)
- Various payloads (impact, markers (UV, IR, RF, visible), malodorants)

Program Objectives: To integrate an under-barrel non lethal (tactical paint-ball type) weapon system on the M16A2/M4 for Crowd Dispersal, Point Target, and MOUT.

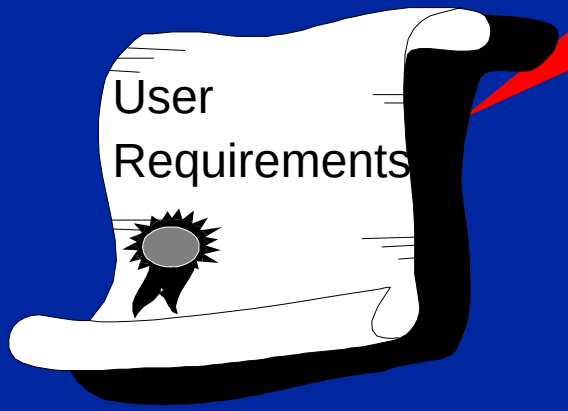
Capability/Technology Roadmap



Technologies	Incapacitate/Stop Individual(s)	Distract Individual(s)	Seize Individuals	Stop a Vehicle	Block an area	Control Crowds	Disarm/Neutralize Equipment
Acoustics	✓	✓			✓	✓	
Kinetics	✓	✓				✓	
Entanglements	✓		✓	✓	✓		
Vehicle Stoppers				✓			✓
Riot Control Agents	✓	✓	✓		✓	✓	

Conclusions

Specific Requirements critical to "drive" materiel development and acquisition



Must be able to control civilians/noncombatants in order to succeed in the missions of tomorrow